Long Beach ENERGY
A DEPARTMENT OF THE CITY OF LONG BEACH

G-228P
SPECIFICATION FOR INSTALLATION OF P.E. GAS MAIN AND SERVICES

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Materials:

Plastic Pipe and Fittings:

The contractor shall furnish and deliver yellow Polyethylene pipe in accordance with the following:

NOMINAL SIZE (Inches)	SDR	*OUTSIDE* DIAMETER *(Inches)*	*Minimum Wall*	*APPROX. UNIT WEIGHT (Lbs., Per Ft.)*
½"IPS	9.3	.840	.090	.09
¾"IPS	11.0	1.050	.095	.12
1"IPS	11.0	1.315	.119	.19
1 ¼"IPS	10.0	1.660	.116	.34
2"IPS	11.0	2.375	.216	.63
3"IPS	11.5	3.500	.307	1.32
4"IPS	11.5	4.500	.395	2.19
6"IPS	11.5	6.625	.576	4.71
8"IPS	11.5	8.625	.750	7.99

All PE 2406 (yellow) Polyethylene pipe to be furnished shall be new and unused, of domestic manufacture, straight and free from all defects, in lengths as specified herein. The pipe shall be manufactured, tested and marked in strict conformance with the requirements of one of the following pipe specifications:

ASTM D 2513, D3261 . . . . . Plastic Pipe
ASTM D 1248 and D 3350 for a PE 2406 material . . . . . Plastic Pipe, Fittings

Pipe markings shall also comply with the limitations prescribed in U.S. Department of Transportation Pipeline Safety Standards, Part 192, Title 49 - Transportation of Natural and other Gas by Pipe Line, Paragraph 192.63. Two copies of the Inspection Certificate or Test Report certifying compliance with the appropriate Specification shall be furnished for each pipe size and heat or lot number. These documents shall be delivered to Long Beach Energy, Engineering Division, 2400 E. Spring St., Long Beach, CA 90806.

Pipe shall be stenciled "Long Beach Energy – 562.570.2000". Size, type and spacing of lettering shall be consistent with supplier's standard identifiers.

Riser Assemblies:

Risers shall be Perfection Corporation Risers as indicated:

Size		Part No.
¾" Riser	-	79279
1" Riser	-	79405
2" Riser	-	79879

Each meter riser assembly furnished under this specification shall consist of a Schedule 40, ASTM A-53 type E or S, Grade B, SDR-11, anodeless, straight meter riser, 72 inches long overall including a 12-inch PE-2406, TR-418 polyethylene plastic pigtail end. Each assembly shall include a Mueller Co. "Luboseal" meter valve with lock "ears", part number H-11175, an A. Y. McDonald 3/4 inch high pressure lubricated lockwing plug valve, Catalog No. 560B, or an approved equal valve. The meter stop valve shall be threaded onto the meter riser with an applied torque value of 60-foot pounds minimum, 100-foot pounds maximum, as measured by a calibrated torque wrench. Except for the pigtail the plastic portion of the riser assembly shall be protected by a steel casing made from 1.315" diameter x 0.075" wall tubing per ASTM A 513 Type 1, preferably of domestic manufacture. Gas carrying welds shall be 100 percent leak tested at 100 psig for a minimum of 15 seconds. The steel casing shall be coated with an epoxy based gray coating applied via an electrostatic bonding process. The coating shall be a minimum of 10 mils thick, be uniform and smooth in texture, and not show any signs of runs, drips, scratches, spatters, bubbles, holidays, or any other defects. The coating shall be applied to a smooth, clean surface free of burrs, splinters, scale, rust, grease, oil, dust, dirt, or any other surface defects. Methods used to clean the pipe prior to coating shall not reduce the wall thickness of the pipe nor conflict chemically with the coating or with coating adhesion. Areas of coating showing defects after drying shall be removed, the pipe shall be cleaned and restored to a smooth condition, and the coating shall be reapplied in accordance with the above criteria.

The meter stop valve shall be installed prior to applying the LycroPro-Finish for additional protection at the thread intersection with the valve.

A protective cap shall be provided to cover the end of the plastic pipe and a plug shall be provided in the valve outlet to protect the threads.

Care shall be taken during shipment, delivery and installation to prevent damage to both the piping assemblies and the pipe coating.

Transition Fittings:

I.P.S. Schedule 40 steel x I.P.S., SDR-11, P.E. 2406, polyethylene, with epoxy coating on the steel section and the steel end beveled for welding. Approximately 24 inches long with a tamperproof, gas tight, mechanical seal, internally reinforced, at the mid point.

Service Tees:

Plexco: 2"x ¾"Service Tee P/N 31768, IPS fusion type, PE2406, SDR-11,

Electrofusion Fittings:

INNOGAZ Electrofusion Coupling System IPS, PE 2406
¾" – P/N 88386347-3/4IPS
1" – P/N 88386354-1IPS
1 ¼"- P/N 88371788-1-1/4IPS
2" – P/N 88385760-2IPS
4"- P/N 88385786-4IPS
6"- P/N

Excess Flow Valves:

UMAC Model 58, ¾" IPS, PE2406, SDR-11, Socket fusion type, 700 series

Hauling and Distributing Pipe and Materials:

The Contractor shall be required to unload the pipe and distribute it along the route of the pipeline. Care must be taken not to obstruct the roadways any more than is necessary, to lay the pipe well off the traveled roadway where it will not be a menace to traffic, to leave all private and public driveways, alleys, streets, etc., open and handle the pipe in a careful manner so that the pipe and pipe coating or wrapping will not be damaged.

Testing of Persons Performing Plastic Pipe Joining:

No person may be employed making plastic pipe joints unless that person has successfully complied with the requirements of the Code of Federal Regulations, Title 49, Part 192.285, “Plastic Pipe: Qualifying Persons to Make Joints”.

After notification of award and prior to the start of any work on plastic pipelines the Contractor shall submit to the Long Beach Energy a list of personnel he proposes to use to perform plastic pipe joining. The list shall contain a brief outline of each person’s experience to satisfy the requirements of Part 192.285(a)(1).

Long Beach Energy will administer the necessary qualifying tests in accordance with the requirements of part 192.285 (a)(2). Long Beach Energy will furnish pipe and fittings for the tests. The Contractor at his expense must provide all other equipment such as heating equipment, electric generators, timing devices, connecting wiring, clamps, etc.

In scheduling the qualifying tests the Contractor must allow for a period of 3 working days after the tests are administered before the test results will be available.

Pipeline Plastic Pipe Qualification Testing:

The first test will consist of heat fusing a section of two-inch (2”) diameter plastic pipe into both sides of a plastic socket coupling using the qualified joining procedure furnished by Long Beach Energy. The second test shall consist of butt fusing two sections of two-inch (2”) through four-inch (4”) diameter plastic pipe together using the qualified joining procedure furnished by Long Beach Energy. The third test shall consist of heat fusing a ¾” service tee or saddle on top of a section of 2” pipe held in the horizontal position, using the qualified procedure furnished by Long Beach Energy. The resulting joints will be examined and tested in accordance with Part 192.285(b).

Materials and testing costs will be borne by the Contractor. Long Beach Energy will impose a charge of $100.00 per test, whether or not the test is successful.

Full payment for successfully qualifying personnel to perform service line and main plastic pipe joining, except for materials identified as being furnished by Long Beach Energy and costs associated with testing the completed joints (except as otherwise noted), shall be included in the base price bid for the work.

Long Beach Energy will accept qualification testing for heat fusion of 6-inch (6”) diameter plastic pipe and above from the Southern California Gas Company.

Plastic Pipe and Fitting Installation:

Plastic pipe joints shall be made by the socket or butt heat fusion methods only, and shall not be disturbed until they have properly set. Plastic pipe may not be joined by threaded joints, miter joints or other mechanical joints. Electro-fusion joints may be used in special cases with the permission of a Long Beach Energy Inspector.

Heat fusion joints shall comply with the following:

a. Mating surfaces of the joint shall be clean, dry and free of material which might be detrimental to the joint.

b. Heat-fusion joints shall be made by a device that heats the mating surfaces of the joint components uniformly and simultaneously to essentially the same temperature.

c. Heat may not be applied with a torch or open flame.

Plastic piping components are susceptible to damage by mishandling. Gouges, cuts, kinks or other forms of damage may cause failure. Care shall be exercised during handling and installation to prevent any such damage.

The Contractor shall inspect carefully all plastic pipe after each handling operation for cuts, gouges, deep scratches, or other imperfections that could adversely affect serviceability.

Plastic pipe that has been damaged during the course of handling or installation shall be removed and replaced as directed by the Long Beach Energy Inspector. The use of patching saddles, branch saddles, or band-type clamps for the repair of leaks in plastic pipe shall not be permitted. Sections of plastic pipe containing unacceptable defects shall be cut out and replaced with serviceable plastic pipe, using heat fusion fittings. All joints shall be made only by personnel who are qualified to make such connections, using heating and fusion joining tools that have been specifically approved by Long Beach Energy.

Plastic pipe shall be installed in such a way that shear or tensile stresses resulting from construction, backfill or other external loadings are eliminated.

Care shall be exercised at all times to protect the plastic materials from fire, excessive heat, or harmful chemicals. Thermoplastic pipe and fittings shall be protected from long-term exposure to direct sunlight.

Plastic pipe shall be installed with an electrically conductive 12-gauge solid copper tracer wire with black THNN insulation to provide a means of locating the pipe. The tracer wire shall be taped to the plastic pipe at intervals of not more than 6 feet. Where the transition from steel to plastic occurs the tracer wire shall be securely brazed to the steel portion of the transition fitting.

A tracer wire continuity check shall be completed by the contractor and approved by the Inspector prior to backfilling the excavations.

Where insulating fittings or steel to plastic transition fittings are installed the work shall be approved by Long Beach Energy Corrosion Control personnel prior to backfilling.

Plastic piping shall be laid on prepared pipe bedding as specified in the paragraph entitled “Bedding, Backfill and Street Surface Restoration” of Specification 228. Blocks shall not support plastic piping.

When long sections of piping which have been assembled alongside the ditch are lowered in, care shall be exercised to avoid any action that may overstress or buckle the piping or the joints.

The piping shall be installed with sufficient slack to provide for possible contraction.

Plastic pipe may be deflected per manufacturers recommendations. Bends shall be free of buckles, cracks or other evidence of damage. Miter bends are not permitted.

Damaged pipe shall be repaired by cutting out and replacing the damaged section.

Where existing substructures cannot be avoided by the use of smooth bends the Contractor shall make the necessary elevation changes or offsets using 45-degree socket fusion elbows. Long Beach Energy’s Inspector shall be consulted to determine whether to route the new pipe over, under or around any obstruction. A minimum separation of 12 inches shall be maintained between the new pipe and any other substructure unless the Inspector waives this requirement due to unusual circumstances which render it impractical.

Branch service line connections shall be made by using 3/4" P.E. socket fusion three-way tees in the main run unless otherwise noted.

The Contractor shall take all reasonable steps during handling and installation in order to minimize the possibility of dirt or other foreign materials getting inside the pipe. Plastic pipe ends shall be kept closed when left in trench excavations or in work areas for overnight periods. Factory installed caps shall be left on plastic pipe until ready for immediate use.

Control of Static Electricity During Squeeze-Off and Purging Operations:

Friction induced static electricity can buildup on any non-conductive surface, such as plastic pipe, creating the possibility of a spark discharge of sufficient energy to cause ignition of blowing natural gas if the proper air/gas mixture is present. A film of water on the surface of the pipe provides a conductive path to rapidly diffuse static electricity. All pipe in the work area which may be touched during purge or squeeze operations must be sprayed, doused with water, or kept wet by wiping it with a water saturated absorbent cloth. Leave the wet cloth wrapped around the pipe near the end of the opening.

Where metallic pipe is involved, construction personnel shall wear dry gloves and take precautions to prevent any other part of the body from coming into contact with pipe, fittings, etc. to help ensure the prevention of accidental ignition of blowing gas.